

Applicants : Chad D. [redacted], Francis O'Brien and Niall R. Lynam [redacted]
Serial No. : 09/817,874
Filed : March 26, 2001
Entitled : INTERACTIVE AUTOMOTIVE REARVISION SYSTEM
Group : 3632

IN THE CLAIMS

1. (Currently Amended)

An interactive vehicular mirror system comprising:

an interior rearview mirror assembly having a mirror casing and a reflective element, said mirror assembly being adapted to mount at an interior portion of the vehicle, and said reflective element having a rearward field of view when said interior mirror assembly is mounted in a vehicle;

at least one user actuatable selector element, said user actuatable selector element comprising a touch sensitive element;

a display element provided at said interior rearview mirror assembly;

said display element generating a display;

said display viewable to an occupant of the vehicle at said reflective element;

said display being generated in response to said user actuatable selector element being actuated by a user; and

said display element and said user actuatable selector element being at least one of adjacent and co-located such that a cognitive relationship is established by actuation of the user actuatable selector element by a user and said generation of said display

~~a user actuatable selector element associated with a function and provided at said reflective element, said selector element actuating said display element to display an image associated with said function when said selector element is actuated.~~

2. (Original)

The interactive vehicular mirror system according to Claim 1, wherein said reflective element comprises a prismatic reflective element.

3. (Original)

The interactive vehicular mirror system according to Claim 1, wherein said reflective element comprises an electrochromic reflective element.

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4. (Currently Amended)

The interactive vehicular mirror system according to Claim 1, wherein said selector element is provided ~~on an outer surface of~~ at said reflective element or said mirror casing.


5. (Currently Amended)

The interactive vehicular mirror system according to Claim 4, wherein said selector element is located at ~~a lower portion of~~ said reflective element.

6. (Currently Amended)

The interactive vehicular mirror system according to Claim ~~[[4]]~~5, wherein said selector element is located at a lower perimeter portion of said reflective element.

7. (Original)

The interactive vehicular mirror system according to Claim 1, wherein said display element is re-configurable whereby said display element may be associated with more than one function.

8. (Original)

The interactive vehicular mirror system according to Claim 4, wherein said selector element comprises a touch sensitive element sensitive to one of touching by an object and close approach by an object.

9. (Currently Amended)

The interactive vehicular mirror system according to Claim 8, wherein said touch sensitive element is responsive to at least one chosen from ~~[[of]]~~ heat, capacitance, inductance, and resistance.

10. (Original)

The interactive vehicular mirror system according to Claim 8, wherein said touch sensitive element comprises a transparent touch sensitive element.

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11. (Original)

The interactive vehicular mirror system according to Claim 10, wherein said touch sensitive element comprises a transparent conductive coating.

12. (Currently Amended)

The interactive vehicular mirror system according to Claim 11, wherein said transparent conductive coating comprises one chosen from[[of]] indium tin oxide, tin oxide, doped tin oxide, and doped zinc oxide.

13. (Original)

The interactive vehicular mirror system according to Claim 10, wherein said touch sensitive element comprises a plurality of coatings.

14. (Original)

The interactive vehicular mirror system according to Claim 13, wherein said plurality of coatings comprises a plurality of stacked coatings.

15. (Currently Amended)

The interactive vehicular mirror system according to Claim 8, further comprising another display element in association with said selector element, said another display element being proximate said touch sensitive element
~~-, and said another display element displaying an image indicating said function of said touch sensitive element.~~

16. (Currently Amended)

The interactive vehicular mirror system according to Claim 15, wherein said a display of said another display element comprises an icon.

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17. (Currently Amended)

The interactive vehicular mirror system according to Claim 15, wherein said another display element comprises one chosen from [[of]] a liquid crystal display, an organic light emitting diode display, an inorganic light emitting diode display, a plasma display, a fluorescent display, and an electroluminescent display.

18. (Original)

The interactive vehicular mirror system according to Claim 15, wherein said another display element is transparent in at least one state.

19. (Original)

The interactive vehicular mirror system according to Claim 1, wherein said user actuatable selector element comprises a transparent touch sensitive element.

20. (Currently Amended)

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The interactive vehicular mirror system according to Claim ~~19~~1, wherein said reflective element includes a semitransparent reflector, and said display element is positioned behind said semitransparent reflector.

21. (Original)

The interactive vehicular mirror system according to Claim 20, wherein said semitransparent reflector comprises a metal coating and a transparent conductor.

22. (Original)

The interactive vehicular mirror system according to Claim 1, wherein said display element is provided at said reflective element spaced from said touch sensitive element.

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23. (Original)

The interactive vehicular mirror system according to Claim 22, wherein said display element comprises a light emitting display.

24. (Currently Amended)

The interactive vehicular mirror system according to Claim 23, wherein said light emitting display comprises one chosen from [[of]] a liquid crystal display, an electrochromic display, an organic light emitting diode display, an inorganic light emitting diode display, a plasma display, a fluorescent display, and an electroluminescent display.

25. (Original)

The interactive vehicular mirror system according to Claim 23, wherein said display element is disposed behind said reflective element.

26. (Original)

The interactive vehicular mirror system according to Claim 23, wherein reflective element includes a reflector, a portion of said reflector being at least partially removed to form a window, said display element being disposed behind said window and viewable through said window when said display element is actuated.

27. (Currently Amended)

The interactive vehicular mirror system according to Claim 23, wherein reflective element comprises a semitransparent reflective element, said display being viewable through said semitransparent reflective element when said display element is actuated.

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28. (Currently Amended)

An interactive vehicular ~~vehicular~~ mirror system comprising:

an interior rearview mirror assembly having a mirror casing and a reflective element, said mirror assembly being adapted to mount at an interior portion of the vehicle, and said reflective element having a rearward field of view when said interior mirror assembly is mounted in a vehicle;

a plurality of display elements comprising a first display element and a second display element; and

a respective plurality of touch sensitive elements associated with said plurality of display elements, said plurality of touch sensitive elements comprising a first touch sensitive element and a second touch sensitive element;

said first and second display elements and provided at said interior mirror assembly[[]];

said first touch sensitive element being at least one of co-located and adjacent said first display element, and said second touch sensitive element being at least one of co-located and adjacent said second display element such that a cognitive relationship is established between actuation of said touch sensitive elements and the generation of displays by said display elements; and

~~each of said touch sensitive elements having at least one function associated therewith, and~~

a first display being generated by said first display element associated with each of said display elements displaying an image indicating said at least one function of a respective said first touch sensitive element at least when said respective first touch sensitive element is actuated, and a second display being generated by said second display element associated with said second touch sensitive element at least when said second touch sensitive element is actuated.

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29. (Currently Amended)

The interactive vehicular mirror system according to Claim 28, further comprising another display element provided at said interactive vehicular mirror system, at least one of said touch sensitive elements activating said another display element and actuating said another display element to display at least one display image associated with said function of said at least one touch sensitive element when said at least one touch sensitive element is actuated.

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30. (Original)

The interactive vehicular mirror system according to Claim 29, wherein said another display element is positioned at said reflective element.

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31. (Original)

The interactive vehicular mirror system according to Claim 30, wherein said another display element is positioned behind said reflective element and is viewable through said reflective element when said another display element is actuated.

32. (Currently Amended)

The interactive vehicular mirror system according to Claim 28, wherein said touch sensitive elements are provided ~~on~~ at an outer surface of said reflective element or at said mirror casing.

33. (Original)

The interactive vehicular mirror system according to Claim 28, wherein at least one of said display elements comprises a re-configurable display element whereby said re-configurable display element may be associated with more than one function.

34. (Original)

The interactive vehicular mirror system according to Claim 32, wherein at least one of said touch sensitive element comprises a transparent touch sensitive element.

35. (Currently Amended)

The interactive vehicular mirror system according to Claim 34, wherein said touch sensitive element is responsive to at least one chosen from [[of]]heat, capacitance, inductance, and resistance.

36. (Original)

The interactive vehicular mirror system according to Claim 28, wherein said touch sensitive element comprises a transparent touch sensitive element.

37. (Original)

The interactive vehicular mirror system according to Claim 36, wherein said transparent touch sensitive element includes a transparent conductive coating.

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38. (Currently Amended)

The interactive vehicular mirror system according to Claim 37, wherein said transparent conductive coating comprises one chosen from [[of]] indium tin oxide, tin oxide, doped tin oxide, and doped zinc oxide.

39. (Original)

The interactive vehicular mirror system according to Claim 36, wherein said touch sensitive element comprises a plurality of coatings.

40. (Original)

The interactive vehicular mirror system according to Claim 39, wherein said plurality of coatings comprises stacked coatings.

41. (Currently Amended)

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The interactive vehicular mirror system according to Claim 28, wherein said first plurality of display element[[s]] is are proximate said first ~~respective selector~~ touch sensitive element[[s]], and said second display element is proximate said second touch sensitive element.

42. (Currently Amended)

The interactive vehicular mirror system according to Claim 41, wherein each of said plurality of display elements comprises one chosen from [[of]] a liquid crystal display, an organic light emitting diode display, an inorganic light emitting diode display, an electrochromic display, a plasma display, a fluorescent display, and an electroluminescent display.

43. (Original)

The interactive vehicular mirror system according to Claim 42, wherein said plurality of display elements are transparent at least in one state.

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44. (Currently Amended)

The interactive vehicular mirror system according to Claim 29, wherein at least one of said ~~another~~ display elements displays at least one video image.

45. (Currently Amended)

The interactive vehicular mirror system according to Claim 44, wherein said video image comprises one chosen from [[of]] (i) a rearward field of view image, (ii) an internal cabin monitoring image, (iii) a teleconferencing image, (iv) a remote monitoring image, (v) an emergency recording image, and (vi) a forward field of view image.

46. (Currently Amended)

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The interactive vehicular mirror system according to Claim 29, wherein at least one of said ~~another~~ display elements displays at least one chosen from [[of]] (i) a rain sensor operation display, (ii) a telephone information display, (iii) a highway status information display, (iv) a blind spot indicator display, (v) a hazard warning display, (vi) a vehicle status display, (vii) a page message display, (viii) a speedometer display, (ix) a tachometer display, (x) an audio system display, (xi) a fuel gauge display, (xii) a heater control display, (xiii) an air conditioning system display, (xiv) a status of inflation of tires display, (xv) a trailer tow image display, (xvi) an e-mail message display, (xvii) a compass display, (xviii) an engine coolant temperature display, (xix) an oil pressure display, (xx) a cellular phone operation display, (xxi) a global positioning system display, (xxii) a weather information display, (xxiii) a temperature display, (xxiv) a traffic information display, (xxv) a telephone number display, (xxvi) a fuel status display, (xxvii) a battery condition display, (xxviii) a time display, (xxix) a train approach warning display, and (xxx) a toll transaction display.

47. (Currently Amended)

The interactive vehicular mirror system according to Claim 29, wherein at least one of said ~~another~~ display elements is adapted to display ~~scrolling~~ scrolling displays images.

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48. (Currently Amended)

The interactive vehicular mirror system according to Claim 29, wherein at least one of said another display elements displays at least two displays images.

49. (Original)

The interactive vehicular mirror system according to Claim 29, wherein said reflective element comprises a prismatic reflective element.

50. (Currently Amended)

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The interactive vehicular mirror system according to Claim 49, wherein said reflective element includes a reflector on a back surface of said reflective element, said reflector being at least partially removed to define a window, said another display being positioned at least partially behind said window, and said display image associated with said function being viewable at least when said another display displays said display image associated with said function.

51. (Original)

The interactive vehicular mirror system according to Claim 29, wherein said reflective element comprises an electrochromic reflective element.

52. (Currently Amended)

The interactive vehicular mirror system according to Claim 51, wherein said reflective element includes an electrochromic medium and a reflector, a portion of said reflector being at least partially removed, and said another display element being positioned behind said portion whereby said display image associated with said function is viewable through said reflective element at least when said another display element displays said display image associated with said function.

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53. (Currently Amended)

An interactive vehicular mirror system comprising:

an interior mirror assembly having a mirror casing and a reflective element, said interior mirror assembly being adapted to mount at an interior portion of a vehicle, said reflective element having a rearward field of view when said interior rearview mirror assembly is mounted to the vehicle and a plurality of user actuatable selector elements;

a display element; and

~~each of said user actuatable selector elements having at least one function associated therewith,~~

at least one of said selector elements activating said display element ~~and actuating said display element~~ to display at least one display image associated with said function of said at least one selector element and wherein actuation of another selector element changes the display displayed by said display element to another display.

54. (Currently Amended)

The interactive vehicular mirror system according to Claim 53, wherein at least one of said displays image is selected from the group consisting of (i) a telephone conference display image (ii) a highway status information display image, (iii) a blind spot information display image, (iv) a hazard warning information display image, (v) a vehicle status information display image, (vi) a page messaging information display image, (vii) a speedometer information display image, (viii) a tachometer information display image, (ix) a remote transaction information display image, (x) an audio system information display image, (xi) a fuel gauge information display image, (xii) a heater control information display image, (xiii) a ventilation system information display image, (xiv) a status of inflation of tires information display image, (xv) a trailer tow display image, (xvi) an e-mail message information display image, (xvii) a compass information display image, (xviii) an engine coolant temperature information display image, (xix) an oil pressure information display image, (xx) a cellular phone operation information display image, (xxi) a global positioning system information display image, (xxii) a weather information display image, (xxiii) a temperature information display image, (xxiv) a traffic information display image, (xxv) a telephone number information display image, (xxvi) fuel status information display image, (xxvii) battery condition information display image, (xxviii) time information display image, and (ixxx) stock information display image.

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55. (Currently Amended)

The interactive vehicular mirror system according to Claim 53, wherein said display element displays at least one chosen from [[of]] (i) a rearward field of view display image, (ii) an internal cabin monitoring display image, (iii) a teleconferencing display image, (iv) a remote monitoring display image, (v) an emergency recording display image, and (vi) a forward field of view display image.

56. (Currently Amended)

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The interactive vehicular mirror system according to Claim 53, further comprising an image capturing device adapted for mounting to the vehicle, said selector elements including a rear vision selector element, said image capturing device detecting at least one chosen from [[of]] an internal cabin image and an image rearward of the vehicle and sending an image signal based on said at least one chosen from [[of]] an internal cabin image and an image rearward of the vehicle to said display element for display said at least one chosen from [[of]] an internal cabin image and an image rearward of the vehicle by said display element when said rear vision selector element is actuated.

57. (Original)

The interactive vehicular mirror system according to Claim 56, further comprising an exterior sideview mirror assembly, said image capturing device being positioned at said exterior sideview mirror assembly for capturing an image rearward of the vehicle.

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58. (Original)

The interactive vehicular mirror system according to Claim 53, wherein said interior rearview mirror assembly further includes at least one accessory selected from the group consisting of (i) a trainable garage door opener, (ii) a universal home access system, (iii) an INTERNET interface, (iv) a remote keyless entry receiver, (v) a video device, (vi) a rain sensor, (vii) a compass sensor, (viii) a trip computer, (ix) an intrusion detector, (x) a phone, (xi) an interior light, (xii) a seat occupancy detector, (xiii) a phone attachment, (xiv) an electro-optic reflective mirror element, (xv) an electrochromic reflective mirror element, (xvi) a headlamp controller, (xvii) a printer, (xviii) a transmitter/receiver, (xix) a modem, (xx) an instrumentation light, (xxi) a console light, (xxii) a solar panel, (xxiii) a windshield portion defogger device, (xxiv) an antenna, (xxv) a loudspeaker, (xxvi) a microphone, (xxvi) a digital message recorder, (xxvii) a magnetic tape message recorder, (xxviii) a phone control panel, (xxix) a digital storage device, and (xxx) a GPS/navigational system.

59. (Original)

The interactive vehicular mirror system according to Claim 53, wherein said selector elements comprise touch sensitive elements.

60. (Currently Amended)

The interactive vehicular mirror system according to Claim 59, wherein each of said touch sensitive elements is responsive to at least one chosen from [[of]] heat, capacitance, inductance, and resistance.

61. (Currently Amended)

The interactive vehicular mirror system according to Claim 58, wherein each of said touch sensitive elements includes interposed between said touch sensitive elements and said reflective element a display element, said display elements of said touch sensitive elements displaying an display image indicating a function of said touch sensitive element.

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62. (Currently Amended)

The interactive vehicular mirror system according to Claim 61, wherein said display image comprises an icon.

63. (Currently Amended)

The interactive vehicular mirror system according to Claim 61, wherein each of said display elements of said touch sensitive elements comprises one chosen from [[of]] a liquid crystal display, an organic light emitting diode display, an inorganic light emitting diode display, a plasma display, a fluorescent display, an electrochromic display, and an electroluminescent display.

64. (Currently Amended)

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The interactive vehicular mirror system according to Claim 61, wherein at least one of said touch sensitive elements comprises a re-configurable touch sensitive element whereby said re-configurable touch sensitive element may be associated with ~~one~~ more than one function.

65. (New)

The interactive vehicular mirror system according to Claim 1, wherein said user actuatable selector element comprises a re-configurable touch sensitive element whereby said re-configurable touch sensitive element may be associated with a second function, said display element displaying another display associated with said second function when said user actuatable selector element is reconfigured to said second function and actuated.

66. (New)

The interactive vehicular mirror system according to Claim 1, where in said mirror casing includes a bezel, said actuatable selector element being located at said bezel or said reflective element.

67. (New)

The interactive vehicular mirror system according to Claim 1, further comprising a plurality of user actuatable selector elements.

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68. (New)

The interactive vehicular mirror system according to Claim 8, wherein said selector element comprises a back-lit touch sensitive element.

69. (New)

The interactive vehicular mirror system according to Claim 8, wherein said selector element comprises a touch sensitive element sensitive to touching by an object.

70. (New)

The interactive vehicular mirror system according to Claim 69, wherein said touch sensitive element is sensitive to touching by a stylus.

71. (New)

The interactive vehicular mirror system according to Claim 69, wherein said touch sensitive element is sensitive to touching by a finger.

72. (New)

The interactive vehicular mirror system according to Claim 8, wherein said selector element comprises a touch sensitive element sensitive to close approach by an object.

73. (New)

The interactive vehicular mirror system according to Claim 1, wherein said display comprises an alpha-numeric image.

74. (New)

The interactive vehicular mirror system according to Claim 1, wherein said display comprises a multi-pixel display.

75. (New)

The interactive vehicular mirror system according to Claim 1, wherein said display element displays a family of display functions.

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76. (New)

The interactive vehicular mirror system according to Claim 75, wherein said family of display functions includes at least one chosen from (i) a compass mirror display function, (ii) a temperature display function, (iii) a tire pressure/status display function, (iv) a status of inflation of tires display function, (v) a GPS/navigation system function, (vi) a telematic function, (vii) computer display function, (viii) e-mail function, (ix) an INTERNET access function, (x) a passenger air bag disabled display function, (xi) an automatic rain sensor operation display function, (xii) telephone dial information display function, (xiii) highway status information display function, and (xiv) blind spot indicator display function.

77. (New)

The interactive vehicular mirror system according to Claim 1, wherein said display comprises a fixed display.

78. (New)

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The interactive vehicular mirror system according to Claim 1, wherein said display comprises a scrolling display.

79. (New)

The interactive vehicular mirror system according to Claim 1, wherein said display comprises a video display image.

80. (New)

The interactive vehicular mirror system according to Claim 1, wherein said display element comprises one chosen from a liquid crystal display, an organic light emitting diode display, an inorganic light emitting diode display, a plasma display, a fluorescent display, and an electroluminescent display.

81. (New)

The interactive vehicular mirror system according to Claim 1, wherein said display element is disposed behind said reflective element.

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82. (New)

The interactive vehicular mirror system according to Claim 81, wherein said reflective element comprises a transreflective element, said display element being disposed behind said transreflective element and viewable through said transreflective element when said display element is actuated.

83. (New)

The interactive vehicular mirror system according to Claim 1, wherein said display element is reconfigurable so that said display element can be associated with more than one function and display more than one display.

84. (New)

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The interactive vehicular mirror system according to Claim 83, further comprising a plurality of display elements.

85. (New)

The interactive vehicular mirror system according to Claim 84, wherein each of said display elements is reconfigurable such that each display element can be associated with more than one function and display more than one display.
